

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed February 25, 2004. Claims 1-20 are pending in the application. Claims 1-20 stand rejected. Applicants have amended Claims 1, 2, 10, 17, and 20. Applicants submit that no new matter has been added with these amendments. Applicants respectfully request reconsideration and favorable action in this case.

Section 112 Rejections

The Examiner rejects Claims 1, 2, 10, 17, and 20 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner states that the phrases "a multiple of a symbol rate of the WDM signal within 0.4 to 0.6 of an integer" and "a multiple of a symbol rate within substantially 0.5 of an integer" are confusing and unclear. Applicants have amended Claims 1, 2, 10, 17, and 20 to clarify the subject matter which the Applicants regard as the invention. Therefore, Applicants respectfully submit that Claims 1, 2, 10, 17, and 20 are in condition for allowance. Reconsideration and favorable action is requested.

Section 103 Rejections

The Examiner rejects Claims 1, 2, 4-10, 12-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,606,178 issued to Rhee, et al. ("*Rhee*") in view of JP 2000059300 issued to Nishizawa Hideki ("*Nishizawa*") and further in view of U.S. Patent 6,058,147 issued to Eklof, et al. ("*Eklof*"). The Examiner rejects Claims 3 and 11 under 35 U.S.C. § 103(a) as being unpatentable over *Rhee* in view of *Nishizawa* and *Eklof* as applied in independent Claims 1 and 9, and in further view of U.S. Patent 6,473,214 issued to Roberts, et al. ("*Roberts*"). Applicants respectfully traverse all assertions and rejections therein.

To begin with, the proposed *Rhee* - *Eklof* combination is improper because *Eklof* is not analogous art. The Examiner must determine what is analogous prior art for the purpose of analyzing the obviousness of the subject matter at issue. M.P.E.P. § 2141.01(a). "In order

to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992). "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which because of the matter with which it deals, logically would have commended itself to an inventor's attention when considering his problem." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). Since *Eklof* does not mention wavelength division multiplexed (WDM) signals, much less multiplexed signals, *Eklof* is not in Applicants' field of endeavor nor would it have "commended itself" to Applicants when determining how to increase the density of WDM systems. A person of ordinary skill, seeking to increase the density of WDM systems, would not reasonably be expected or motivated to look to satellite communication systems, of which *Eklof* is concerned.

Even assuming for the sake of argument that *Eklof* can be construed as analogous art, the Examiner has not met his burden of establishing a *prima facie* case of obviousness in making these rejections. According to M.P.E.P. §2143, to establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to combine the references. Second, there must be a reasonable expectation of success. Third, the prior art combination of references must teach or suggest all the claim limitations. As described below, the Examiner has failed to satisfy all of these elements of non-obviousness, which are required to support a proper §103 analysis.

A. The Cited References Fail to Disclose, Teach, or Suggest Each and Every Element of Claims 1-20

The Examiner has not shown how the proposed combination teaches each and every limitation of the claimed invention. For example, amended Independent Claim 1 recites, "receiving a wavelength division multiplexed (WDM) signal having a symbol rate and comprising a plurality of non-intensity modulated optical information signals having a minimum channel spacing that is greater than $(N+0.4)B$ and less than $(N+0.6)B$, where B comprises the symbol rate of the WDM signal and N comprises an integer." For the teaching of "a plurality of non-intensity modulated information signals having a minimum channel

spacing,” the Examiner offers the following passage from *Rhee*: “All of the optical signals transmitted through fiber 30 have all their phase simultaneously modulated by a phase modulator 50.” But Applicants submit that the Examiner has failed to recognize that the phase of *intensity modulated signals* are being modulated for reducing four-wave mixing. *Rhee*, Col. 4, Lines 24-26. In particular, *Rhee* teaches that data modulators $42_1, \dots, 42_n$ modulate the amplitude of light provided from laser diodes $40_1, \dots, 40_n$, i.e., the modulation produces intensity modulated signals for transmission over long fiber 30. Once these intensity modulated signals are multiplexed, all the intensity modulated signals have their phases simultaneously modulated by modulator 50. *Rhee*, Col. 3, Lines 62-67. By synchronizing the phase modulation to the intensity data modulation, eye opening is enhanced due to the chirp introduced by the phase modulation. *Rhee*, Col. 4, Lines 25-28. Accordingly, Applicants respectfully submit that *Rhee* thus teaches phase modulating an intensity modulated signal but not “a plurality of *non-intensity* modulated optical information signals.”

Further, for the teaching of the limitation of “a minimum channel spacing that is greater than $(N+0.4)B$ and less than $(N+0.6)B$, where B comprises the symbol rate of the WDM signal and N comprises an integer,” the Examiner offers the following passage from *Eklof*: “The channel spacing usually ranges from 1.0 to 2.0 times the symbol rate (typically 1.4).” *Eklof*, Col. 8, Lines 44-45. However, the Examiner fails to consider the *entire* limitation as claimed. *Eklof* merely discloses three methods for locking onto a frequency of a satellite signal transmitted between ground stations and a satellite. Col. 6, Lines 13-62. *Eklof* fails to teach or suggest a WDM signal, much less a WDM signal comprising “a plurality of non-intensity modulated optical information signals having a minimum channel spacing that is greater than $(N+0.4)B$ and less than $(N+0.6)B$, where B comprises the symbol rate of the WDM signal and N comprises an integer.” The offered passage refers to the second method of locking onto a frequency of a satellite signal when “the total frequency uncertainty is greater than half of the unaliased NBD range but less than half of the channel spacing.” However, even assuming that *Eklof* teaches that a satellite signal may have a channel spacing that is greater than $(N+0.4)B$ and less than $(N+0.6)B$, the Examiner has not established the relevance of such a teaching to the recited limitation, which requires that a plurality of non-intensity modulated signals of *a WDM signal* have such channel spacing.

Accordingly, Applicants respectfully request reconsideration and allowance of Claim 1 and its dependents Claims 2-8.

Independent Claims 9 and 17 are allowable for analogous reasons. Claims 10-16 each depend from independent Claim 9 and are thus patentable over the cited art, for example, for at least the reasons discussed above with regard to Claim 9. Claims 18-20 each depend from independent Claim 17 and are thus patentable over the cited art, for example, for at least the reasons discussed above with regard to Claim 17.

B. No Motivation or Suggestion to Combine *Rhee*, *Eklof*, and *Nishizawa*

The M.P.E.P. sets forth a strict legal standard for finding obviousness based on a combination of references. According to the M.P.E.P., "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge [that was] generally available to one of ordinary skill in the art" at the time of the invention. M.P.E.P. 2143.01. The "fact that references can be combined or modified does not render the resultant combination [or modification] obvious unless the prior art also suggests the desirability of the combination" or modification. *Id.* (emphasis in original).

The governing Federal Circuit case law makes this strict legal standard even more clear.¹ According to the Federal Circuit, "a showing of a suggestion, teaching, or motivation to combine . . . prior art references is an essential component of an obviousness holding." *In re Sang-Su Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25 (Fed. Cir. 2000)). "Evidence of a suggestion, teaching, or motivation . . . may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved." *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). However, the "range of sources available . . . does not diminish the requirement for actual evidence."

¹ Note M.P.E.P. 2145(X)(C) ("The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.").

Id. In *In re Dembiczak*, the Federal Circuit reversed a finding of obviousness by the Board of Patent Appeals and Interferences, explaining that proper evidence of a teaching, suggestion, or motivation to combine is essential to avoid impermissible hindsight reconstruction of an applicant's invention:

Our case law makes clear that the best defense against the subtle but powerful attraction of hind-sight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references*. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999 (quoting *W.L. Gore & Assoc., Inv. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983)) (emphasis added) (citations omitted).²

In the present case, the Examiner is improperly using the Applicant's disclosure as a blueprint for piecing together various elements of *Rhee*, *Eklof*, and *Nishizawa*. For example, the Examiner merely asserts that it would have been obvious to combine *Rhee* with “to minimize the deterioration of the system” by having the channel spacing based on the symbol rate. Office Action, Page 4. However, nowhere does *Rhee* disclose, teach, or suggest a need for having the channel spacing depend on the symbol rate. Further, *Eklof* does not disclose, teach, or suggest employing such channel spacing in a WDM signal. In fact, *Eklof* merely mentions as an aside that the channel spacing of a satellite signal may be one to two times the symbol rate when describing the conditions for using the second disclosed method for locking onto a transmitting frequency. Thus, the suggestion or motivation required by M.P.E.P. § 2143.01 for the proposed combination of *Rhee* and *Eklof* does not exist, and the Examiner has failed to identify the source of such suggestion or motivation.

Additionally, the Examiner merely asserts that it would have been obvious to combine *Rhee* with *Nishizawa* “for increasing the intensity of the signal and adjusting delay bit length of Mach-Zender interferometer, such that, improving the speed of the communication system.” Office Action, pages 3, 4, and 6. However, nowhere does *Rhee* disclose, teach, or suggest a need for an asymmetric interferometer that is operable to convert

² See also *In Re Jones*, 958 F.2d 347, 351 (Fed. Cir. 1992) (“Conspicuously missing from this record is any evidence, other than the PTO’s speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts necessary to arrive at” the claimed invention.).

the non-intensity modulated optical information signal into an intensity modulated optical information signal, as claimed. In fact, *Rhee* merely teaches a system for modulating the phase of intensity-modulated signals for reducing FWM, as discussed above. Since the optical information signals disclosed in *Rhee* are already intensity modulated, there is no reason to include an asymmetric interferometer as claimed. Thus, the suggestion or motivation required by M.P.E.P. § 2143.01 for the proposed combination of *Rhee* and *Nishizawa* does not exist, and the Examiner has failed to identify the source of such suggestion or motivation.

Consequently, a *prima facie* case of obviousness cannot be maintained with respect to Claims 1-20, as the Examiner has not shown the requisite proof necessary to establish a suggestion or motivation to combine the cited references. For at least this reason, Applicant respectfully requests reconsideration and allowance of Claims 1-20.

CONCLUSION

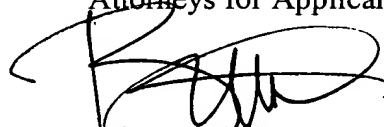
Applicant has made an earnest attempt to place this case in condition for allowance. For at least the foregoing reasons, Applicant respectfully requests full allowance of all the pending claims.

If the present application is not allowed and/or if one or more of the rejections is maintained, Applicant hereby requests a telephone conference with the Examiner and further requests that the Examiner contact the undersigned attorney to schedule the telephone conference.

Although Applicant believes no fees are due, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Applicant



Brian W. Oaks
Reg. No. 44,981

Correspondence Address:

Baker Botts L.L.P.
2001 Ross Avenue, Suite 600
Dallas, Texas 75201-2980
Tel. (214) 953-6986

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